

## ABSTRACT

Disclosed is a method of increasing the luminescent bandwidth of a photoelectric semiconductor device. Such method uses separate confinement heterostructure (SCH) region having a shortened width to reduce the time for holes to pass therethrough and curtail the difference between the time for holes to enter the quantum well structures and the time for electrons to enter the quantum well structures, and thereby an even uniform carrier distribution can be obtained. Accordingly, each quantum well structure is able to receive carrier and a better luminescent bandwidth can be produced. Such method can be applied in the production of wavelength-tunable semiconductor laser device to enlarge the tunable range of wavelength of the semiconductor laser device, and also such method is quite convenient for testing semiconductor laser device. Furthermore, such method can also be applied in an optical communication system to replace other versatile components, and thus reduce the cost necessary for system integration.